AirDog®
FUEL PREPORATOR

FP-100 & FP-150

INSTALLATION MANUAL

CUMMINS POWERED

DODGE TRUCKS

Model Year 2005 THROUGH 2009

High Performance Replacement Fuel System
For the 5.9L & 6.7L Engine

PLEASE READ THE INSTRUCTIONS THOROUGHLY
BEFORE BEGINNING INSTALLATION

PureFlow® TECHNOLOGIES, INC.
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CANADIAN PATENT
2,108,391

PROTECTED BY
US PATENTS
5,355,860; 5,746,184; 6,729,310

AUSTRALIAN PATENT
2005101054

NEW ZEALAND PATENT
532356
Additional Foreign Patents Pending in Europe, South America, Mexico, Japan, and China!

Approved for Sale and Use in California by CARB!

AirDog
FUEL PREPORATOR
CARB Executive Order G-02-003 under D-955 and D-955U, exempts PureFlow® Diesel Systems from the prohibitions of Sections 29156, 38390 and 38391 of the California Vehicle Code, permitting the advertisement, sale and installation of PureFlow® Diesel Systems device in California on 2005 and older model year on-road diesel vehicles and off-road diesel vehicles/equipment
AirDog™
AIR / FUEL SEPARATION SYSTEM
MODEL NO. FP-150
PureFlow® Diesel System
PureFlow Technologies, Inc.
Jefferson City, Missouri
877-463-4373
Serial No.
Date of Manufacture
Protected Under U.S. Patents
5,355,860 & 5,746,184
Foreign Patents Pending
Fuel Preporator©
AirDog
FUEL PREPORATOR
AirDog
FUEL PREPORATOR

SMALL and COMPACT

7″ Long X 3.2″ Wide X 10″ Tall

LIFETIME LIMITED EXPRESS WARRANTY NOTICE!

To register your LifeTime Limited Express Warranty, you must fill out and return the enclosed Product Registration/Warranty card with a copy of the original sales receipt to PureFlow® Technologies *Within Thirty Days of Purchase*.

Failure to fill out and return your Registration/Warranty card with a copy of the original sales receipt within Thirty Days will result in your receiving a ONE YEAR WARRANTY!

OVERVIEW

Welcome to **PureFlow® Technology's AirDog®**
Fuel Air Separation, Filtration and Delivery System for the Diesel Engine

The AirDog® Fuel Air Separation system is a Premium replacement lift pump and filtration system for the Dodge Cummins diesel engine. A complete installation kit is included.

The AirDog® delivers clean fuel to the engine free of virtually all air/vapor and at a positive flow. Thus, allowing the engine "test cell" performance and efficiency, while in "real world" use.

The AirDog® FP-100 flows 100 GPH and is recommended for stock and slightly modified 5.9 L & 6.7L Cummins Diesels.

The AirDog® FP-150 is recommended for highly modified 5.9L & 6.7L Cummins Diesels.

PureFlow products are manufactured with a personal touch,
unsurpassed attention to detail
and
the most stringent quality control!

TYPICAL INSTALLATION LAYOUT

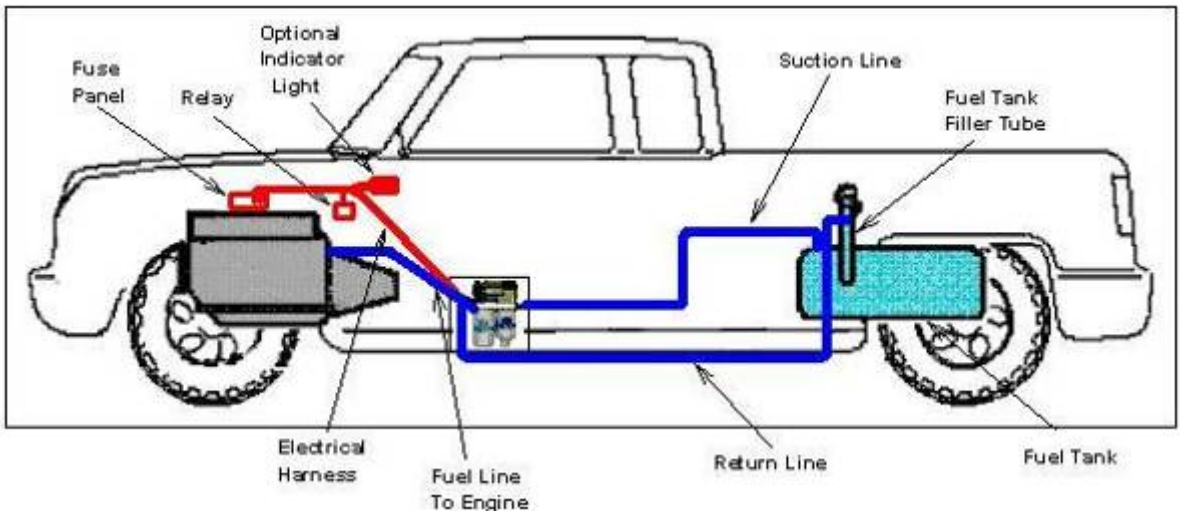

Figure 1

The AirDog® draws fuel from the fuel tank at a constant flow, removing water, particulates, and air/vapor. A regulated pressurized flow is maintained to meet the engine's varying fuel demands. The separated air/vapor is returned by the AirDog® to the fuel tank.

NOTE: The pictures used in this manual are for example only and may not be exactly the same as your truck.

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Lifetime Limited Express Warranty

AirDog®

MODEL FP-100 & 150

The installation of your **AirDog®** can be made relatively easy by following the steps outlined in this manual, and:

1. Inventory the package components completely. Notify *PUREFLOW® TECHNOLOGIES, INC.* immediately of any parts missing or damaged.

2. Read the installation manual completely. Understand how the system operates and installation recommendations before beginning installation.

3. The installation recommendations contained herein are suggested installation guidelines only. Individual installations may vary.

4. If any installation procedure is uncertain, contact *PUREFLOW® TECHNOLOGIES, INC* for technical assistance.

SAFETY GUIDELINES!

NOTE: Proper location of the AirDog® on the vehicle is essential. Consider hazards presented to the equipment by road debris and the elements.

WARNING! Please be sure to chock the vehicle's tires to prevent rolling.

WARNING! Please use proper supports when working beneath an elevated vehicle.

WARNING! Most diesel pickups have two (2) 12volt batteries. Disconnect the battery cables to both batteries before proceeding with the AirDog® installation.

IMPORTANT! Use diesel fuel compatible thread sealer on all NPT tapered pipe thread fuel fitting connections!

WARNING! Vehicle frame rails should not be drilled into or welded upon.

CAUTION! Wear safety glasses when operating power tools such as drills and grinders or when using a punch or chisel.

CAUTION! Use common sense when routing fuel lines and electrical harnesses. Keep them away from hot exhaust components and/or moving parts. Properly secure lines to prevent chaffing.

Use Good Judgment and Common Sense When Installing the AirDog®!

AirDog® Parts List

QTY	DESCRIPTION	Part Number	IMAGE
1	**Installation Manual**	ADI-D0508P 100/150	
1	***AirDog®***	FP-100-D24 *Or* FP-150-D24	
1	**AirDog® Mounting Bracket**	001-3C-0004	
1	**Mounting Bracket Hardware Kit**, Includes: 4ea Socket Head Cap Screws, 1/4-20 x 1-1/4" Lg. 4ea Lock Washers, 1/4” 4ea Hex Nuts, 1/4-20,	901-61-0101-PM	
1	**Frame Bracket**	010-3C-0002PC 010-3C-0001PC	
1	**Frame Bracket Hardware Kit**, Includes: 3ea 3/8” x 4-1/2” Hex Head Bolt, 3ea 3/8” Nut 3ea 3/8” Lock Washer	(Included In) 901-61-0101-PM	
1	**Spacer**	010-3C-0003A	
1	**Spacer Bracket Hardware Kit,** Includes: 4ea Bolts 5/16”x 2 ¾” L 4ea Washers 4ea Nuts	(Included In) 901-61-0101-PM	
1	**Wiring Harness**	5E-2-010	
20 Ft.	**½” Fuel Line**	4C-1-02-08-002	
2	**-8 JIC x 3/8” NPT**	4A-1-02-08-06-S	
4	**-8 Swivel x ½” Push Lock**	4A-1-09-08-08-B	
1	**-8 Swivel x-8 JIC Forged 90°**	4A-2-04-08-08-S	
2	**-8 Swivel x ½” Push Lock 90°**	4A-2-03-08-08-S	
1	**12mm x -8 JIC w/O-ring**	001-4A-1-0002-S	
1	**Return Fuel Filler Tube Assembly** (1-1/2” OD w/2 Clamps)	901-01-0103	
1	**Bundle of Plastic Ties**	5H-2-1-06/12	
1	**Suction Tube Kit**	901-01-0351-V	

Section 4: Installing the AirDog® & Mounting Brackets on the Truck's Frame!

Figure 2

Figure 3

4-1. Assemble the AirDog® mounting bracket to the frame bracket.

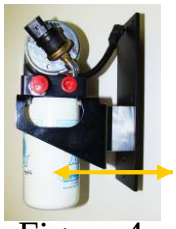


Figure 4

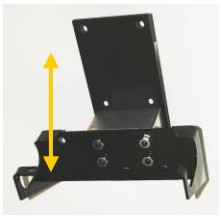


Figure 5

4-2. Use the aluminum spacer block to clear lines and wiring harnesses on the frame. Adjust the assembly up or down on the frame bracket as necessary for clearance.

4-3. Install a 3/8" NPT x -8 JIC flare fitting in the 'FUEL IN' and the out to 'ENGINE' ports in the AirDog®.

Figure 6

4-4. Attach the AirDog® to the frame bracket assembly.

Figure 7

Installing the AirDog® & Mounting Brackets on the Truck's Frame, cont'd!

NOTE: The AirDog® can be mounted on either the inside or the outside of the frame, as space or personal choice dictates.

Figure 8

Mount The AIRDOG® Outside The Frame

Or

Figure 9

Figure 10

Inside The Frame

Figure 11

For this installation, the AirDog® is mounted inside the frame!

4-5. Clamp the frame between the AirDog® bracket assembly and the backing plate using the 3/8" x 4 ½" bolts, lock washers, and nuts included in the kit.

Figure 12

4-6. Position the AirDog® on the frame as necessary for clearance. Properly torque all fasteners!

NOTE: Be sure to mount the AirDog® so the 'FUEL IN' port is directed toward the rear of the vehicle.

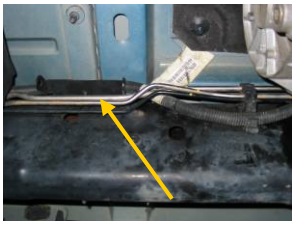
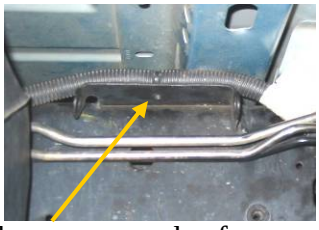


Figure 13A

Figure 13B



NOTE: Some pickup model frame rails have a bracket that is used to support the frame during the manufacturing process If this bracket is on your frame rail and obstructs the proper positioning of the AirDog® mounting bracket, you may remove part or all of it, as needed. Be very careful not to damage the frame flange!

Fuel Supply Line from the AirDog® to the CP-3 For the 5.9L Cummins Engine

The *AirDog*® fuel filter is made by Fleetguard and has a 2 micron Stratapore™ media. When installing the AirDog® fuel system it is recommended to bypass the factory filter canister.

5A-1. Remove the "banjo bolt" and the original factory fuel supply line at the fuel inlet port of the CP-3 high pressure pump.

Figure 14

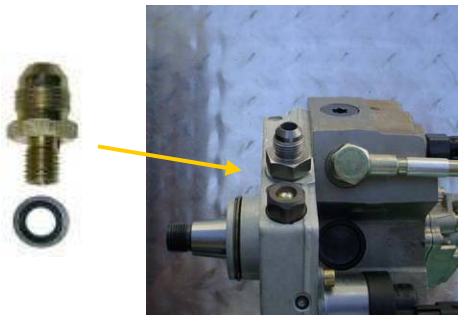


Figure 15

5A-2. Install the 12mm x -8 flare fitting with the O-ring supplied into the inlet port of the CP-3 vacated by the original banjo fitting. Properly torque the 12mm x -8 flare fitting.

Caution: Do not over torque the 12mm fitting, *IT COULD BREAK*!

5A-3. Measure and cut the length of line required to connect the 'Fuel to Engine' port on the AirDog® to the 12mm x -8 flare fuel inlet fitting on CP-3.

CP-3 Fuel Supply Line

Figure 16

AirDog® Fuel Line to Engine

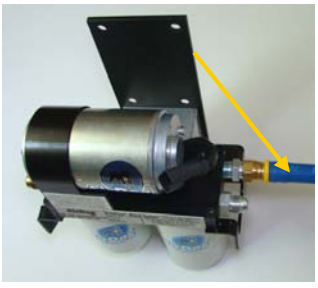


Figure 17

5A-4. Install a 90° -8 Swivel x 1/2" Push Lock on the end of the fuel line to the engine and a straight -8 Swivel x 1/2" Push Lock on the end to the AirDog®.

Figure 18

Figure 19

Figure 20

Fuel Supply Line from the AirDog® to the CP-3 For the 5.9L Cummins Engine

5A-5. Connect one end of the fuel line to the fitting on the AirDog® port marked "ENGINE". Properly torque the fitting.

Figure 21

5A-6. Route and connect the other end of the fuel line with the 90° fitting to the fuel inlet fitting just installed on the CP-3. When tightening the swivel, **use a back up wrench** on the 12mm fitting to preventing breaking it.

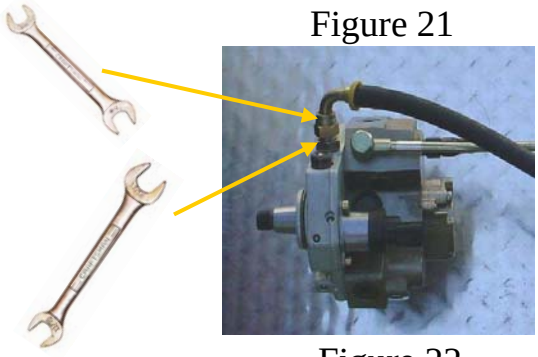


Figure 22

NOTE: It is ***NOT NECESSARY*** or recommended to keep the factory filter canister in the system. This will cause additional flow restriction to the CP-3. It is recommended to cap the inlet port to the OE fuel pump and outlet port of the bypassed filter canister.

Should you choose to keep the factory filter canister in the system, it is recommended to install a ½" fuel line from the filter canister to the CP-3. The optional Big Line Kit is not included with this kit.

Figure 23

Section 5 B
Fuel Supply Line from the AirDog® to the CP-3 For the 6.7L Cummins Engine

The *AirDog*® fuel filter is made by Fleetguard and has a 2 micron Stratapore™ media. When installing the AirDog® fuel system it is recommended to bypass the factory filter canister.

5B-1. Remove the Quick Connect fitting and the original factory fuel supply line at the fuel inlet port of the CP-3 high pressure pump.

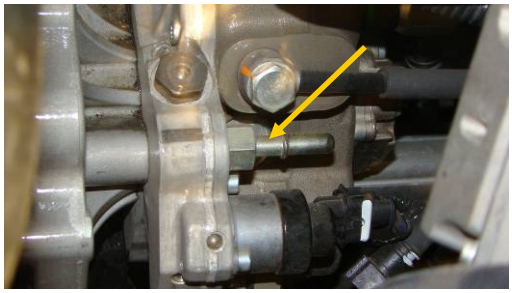


Figure 24

Fuel Supply Line from the AirDog® to the CP-3 For Model Year 6.7L Engine, cont'd

5B-2. Install the 12mm x -8 flare fitting with the O-ring supplied into the inlet port of the CP-3 vacated by the original Quick Connect fitting. Properly torque the 12mm x -8 flare fitting.

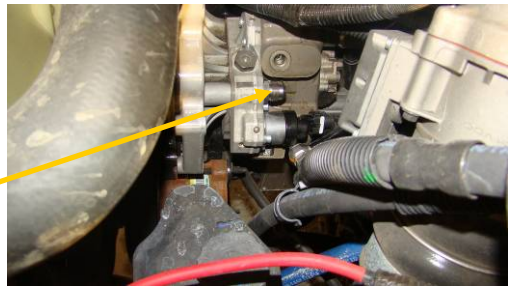


Figure 25

Caution: Do not over torque the 12mm fitting, *IT COULD BREAK*!

5B-3. Measure and cut the length of line required to connect the 'Fuel to Engine' port on the AirDog® to the 12mm x -8 flare fuel inlet fitting on CP-3.

CP-3 Fuel Supply Line

Figure 26

AirDog® Fuel Line to Engine

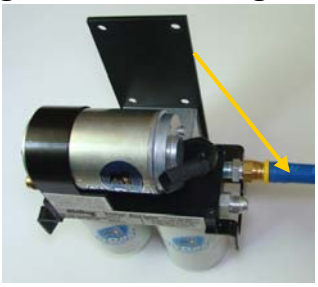


Figure 27

5B-4. Install a straight -8 Swivel x 1/2" Push Lock on each end of the fuel line connecting the engine to the AirDog®.

Figure 28

Figure 29

Figure 30

5B-5. Connect one end of the fuel line to the fitting on the AirDog® port marked "ENGINE". Properly torque the fitting.

To "ENGINE"

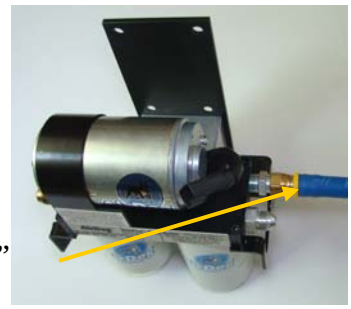


Figure 31

Fuel Supply Line from the AirDog® to the CP-3
For the 6.7L Cummins Engine

5B-6. Route and connect the other end of the fuel line to the fuel inlet fitting just installed on the CP-3. When tightening the swivel, **use a back up wrench** on the 12mm fitting to preventing breaking it.

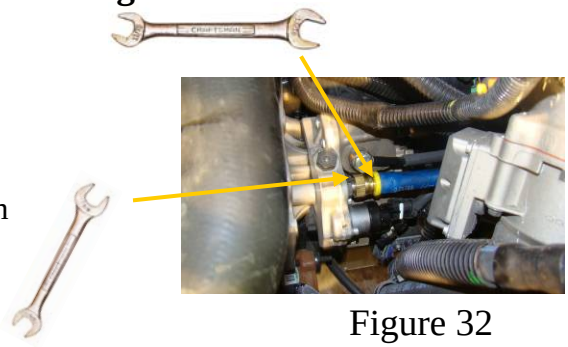


Figure 32

NOTE: It is ***NOT NECESSARY*** or recommended to keep the factory filter canister in the system. This will cause additional flow restriction to the CP-3. It is recommended to cap the outlet port of the bypassed filter canister.

Should you choose to keep the factory filter canister in the system, it is recommended to install a ½" fuel line from the filter canister to the CP-3. The optional Big Line Kit is not included with this kit.

Figure 33

Fuel Return Line from the AirDog® to the Tank

Installing the fuel 'Return to Tank' assembly in Filler Tube

Figure 34-A

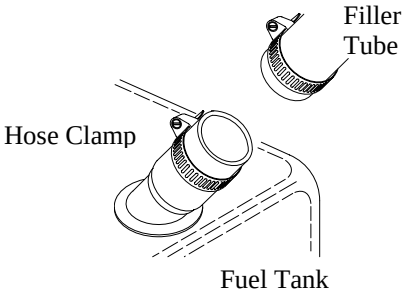


Figure 35-A

5C-1. Cut filler tube as illustrated, removing 1½ inches. Loose assemble clamps on each end of filler tube.

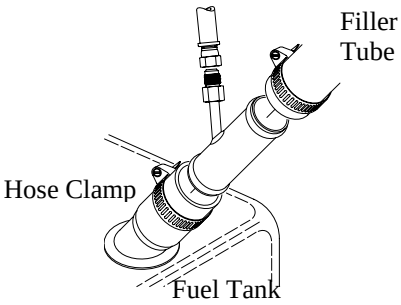


Figure 34-B

Figure 35-B

5C-2. Insert 'Return To Tank' assembly in filler tube rotate and position -8 flare fitting. Properly tighten clamps.

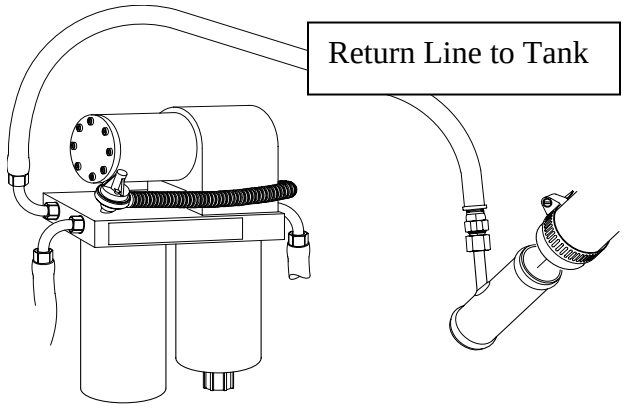


Figure 36

5C-3. Measure and cut the length of fuel line necessary to connect the AirDog® to the 'Return to Tank' assembly in the filler tube.

Fuel Return Line from the AirDog® to the Tank, cont'd

5C-4. **NOTE: For the 5.9L CP-3** installation install **a straight 90° -8 swivel x 1/2" Push Lock** on the end of the fuel line connecting to the AirDog® return to tank.
NOTE: For the 6.7L CP-3 installation install a **90° -8 swivel x 1/2" Push Lock** on the end of the fuel line connecting to the AirDog® return to tank.

Figure 37

Lubricate the barb end of the Push Lock fitting with oil.

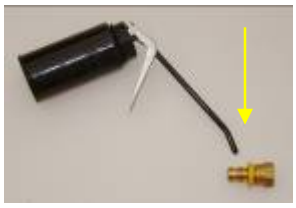


Figure 38

Push the fuel line completely onto the barb end of the fitting.

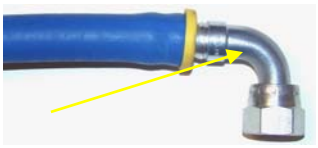
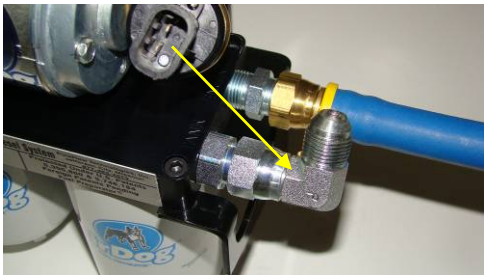


Figure 39

5C-5. Install a straight -8 swivel x 1/2" Push Lock on the end of the fuel line to the tank return (Ref. Fig. 32)

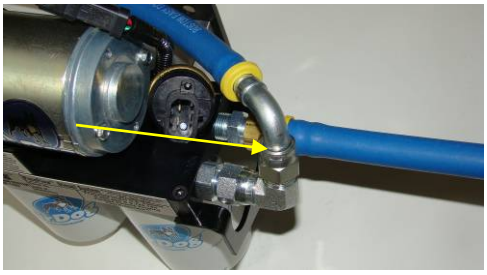
5C-6 Install the forged 90° -8 swivel fitting on the fitting in the AirDog® port marked "TANK".

Figure 40



5C-7. Connect the end of the fuel line with the 90° -8 swivel to the forged 90° fitting in the AirDog® port marked "TANK".

Figure 41



AirDog® Return to Tank

5C-8. Connect' the end with the -8 straight swivel to the 'Return Filler Tube assembly. Properly torque the fittings.

Figure 42

Filler Tube Fuel Return Assembly

INSTALLING THE INTANK FUEL PUMP BYPASS SUCTION TUBE!

NOTE: The AirDog® installation kit includes a Suction Tube to by pass the "in-tank fuel pump on the 2005 - 2009 Dodge.

To install the suction tube it is necessary to either drop the fuel tank or to lift the truck bed.

NOTE: Should you choose to drop the fuel tank, support the tank as it is when it is installed on the truck. If you let it rest flat on the floor, the tank may squash out and the suction tube will be too short after the tank is re-installed in the truck. The suction tube, being cut too short may suck air as the fuel drops below ¼ tank level.

NOTE: Should you choose to pull the pickup bed to access the tank. Be sure to disconnect the tail light wires, fuel tank filler tube, and any other accessories or components that may be secured to the frame and bed.

When Dropping the Tank, Always Remember Safety First!

Proper tools always make the job easier. The following pictures show using a transmission jack to easily lower the fuel tank.

Figure 43

Figure 45

Figure 44

If you do not have access to a lift and transmission jack you may support the truck on jack stands to drop the tank.

INSTALLING THE SUCTION TUBE TO BYPASS THE INTANK FUEL PUMP, Cont'd

If you choose to remove the bed, properly support the truck bed to prevent serious injury or death!

Figure 46

Figure 47

IMPORTANT: Select a location for the suction tube that has adequate clearance below the bed. Also consider that under hard acceleration, fuel will migrate toward the back of the fuel tank.

NOTE: The fuel tank used for the pictures is for an example only and may not be exactly the same as your tank.

5D-1. Remove the collection basket.

Figure 48

Figure 49

5D-2. Drill a 1-1/8" hole at the selected location in the fuel tank for the suction tube. Hold a container below the drill point to catch debris.

Figure 50

Figure 51

INSTALLING THE SUCTION TUBE TO BYPASS THE INTANK FUEL PUMP, Cont'd

5D-3. Remove all burrs from the edge of the hole.

Figure 52

Figure 53

5D-4. Install the grommet in the new suction tube access hole.

5D-5. Assemble the suction tube and -8 flare x 3/8 NPT 90^0 fitting to the bulkhead fitting as shown in Figure 52. Use diesel compatible thread sealer when assembling the NPT fittings to the bulkhead fitting.

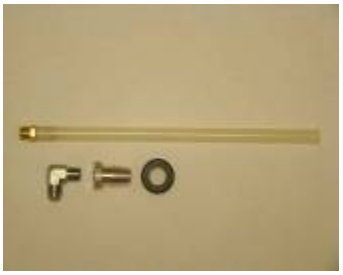


Figure 54

Figure 55

5D-6. Measure and cut the suction tube to a length that will allow approximately ¼" clearance off the bottom of the tank. It is suggested to serrate the bottom of the suction tube with notches approximately 1/8" deep to prevent possible blockage.

5D-7. Lubricate the bulkhead fitting with motor oil. Pressing firmly, insert the suction tube assembly into the grommet. Be sure the bulkhead fitting is completely seated in the grommet.

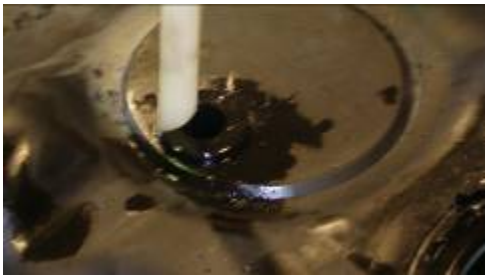


Figure 56

Figure 57

The In-Tank Fuel Pump

VERY IMPORTANT: Before re-installing the collection basket, it is necessary to disable the *in tank* fuel pump.

5D-8. You may either disconnect the power lead to the pump while the collection basket is out of the tank and accessible……

Figure 58

OR

Locate and cut the power supply lead in the wire harness outside the tank

5D-9. Should you decide to disable the *In Tank* fuel pump by cutting the power lead (Orange w/Red Stripe), you could just cut and insulate the wire (Fig 59) OR install connectors to easily reconnect the pump later, if needed (Fig 60).

Figure 59

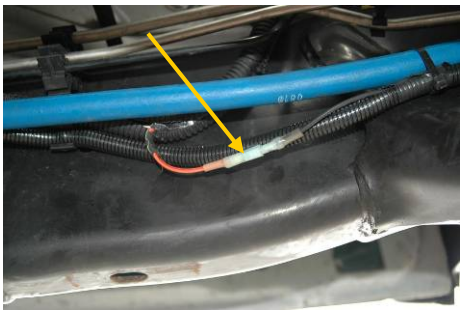


Figure 60

5D-10. Re-install the Collection Basket.

Figure 61

5D-11. Connect the AirDog® suction/supply line to the suction tube while the top of the fuel tank is easily accessible

Figure 62

If the fuel tank was dropped to install the suction tube, re-install the fuel tank. If the truck bed was removed, reinstall the bed.

Connecting the Fuel Supply Line from the AirDog® to the Tank!

5D-1. Measure and cut the length of fuel line required to connect the fuel tank “SUCTION TUBE” to the AirDog® fuel inlet port marked "Fuel In".

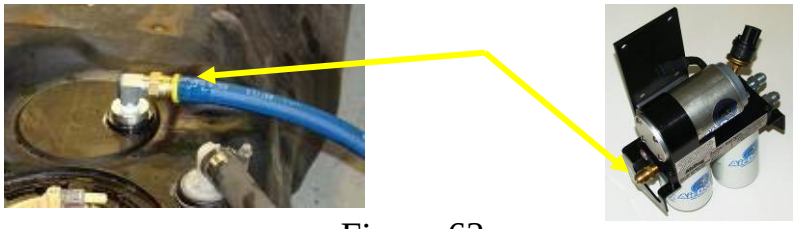


Figure 63

5E-2. Install a straight -8 JIC swivel x ½” Push Lock fitting on each end of the fuel suction line to the fuel tank suction tube.

Figure 64

Lubricate the barb end of the Push Lock fitting with oil.

Figure 65

Push the fuel line completely onto the barb end of the fitting.

Figure 66

5E-3. Connect the straight -8 swivel to the AirDog® “Fuel In” fitting. Torque the fitting.

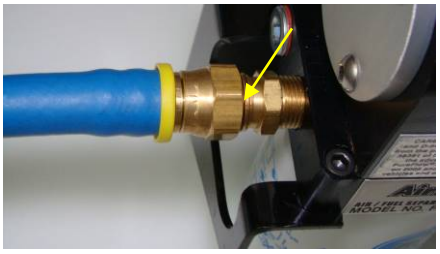


Figure 67

Figure 68

5E-4. Route the other end of the fuel suction line to the fuel tank suction tube.

NOTE: The AirDog® mounted on the frame with all fuel lines attached!

Figure 69

The *AirDog*® wiring harness features all water proof Deutsch connectors, relay, and fuse holder. When properly installed, the AirDog® is controlled by the engine's ECM.

WIRING DIAGRAM (In Red)

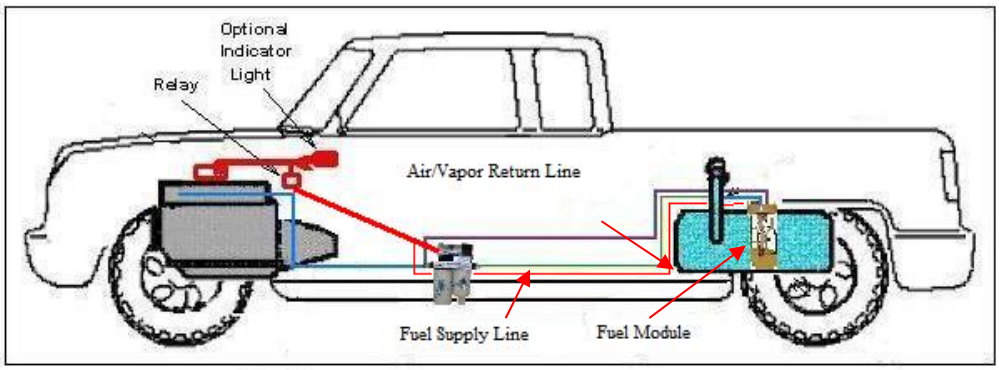


Figure 70

The AirDog® is activated by the ECM through a relay controlled wiring harness connecting directly to the original ECM Deutsch pump connector.

Power Supply Red +

Power Supply Black -

Relay Trigger Lead

Pressure Sensor Lead

Motor Power Supply Lead

Low Fuel Pressure
Indicator Light Leads

ECM Pump Lead Connectors, Female

Figure 71

CAUTION: If the ***OPTIONAL*** Low Pressure Indicator Light is not used, be sure to insulate the two (2) #10 Indicator Light connectors to prevent accidental contact.

Securing the Relay and Fuse Holder to the Vehicle

6-1. Secure the relay and fuse holder to the vehicle.

Figure 72

Figure 73

Connecting the AirDog® Relay Control to the ECM

6-2. To connect the AirDog® relay trigger lead to the ECM fuel pump lead, locate the Orange w/Red Stripe wire coming off of the Fuel Module (Fig. 75). The Orange w/Red Stripe wire will be the right hand wire coming out of the Fuel Module.

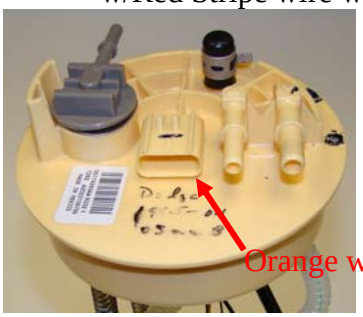


Figure 74

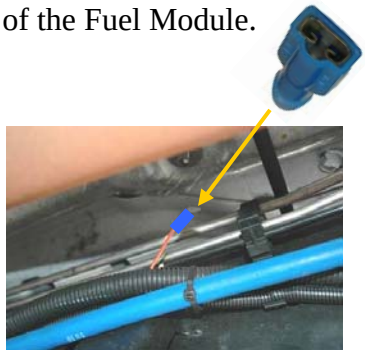


Figure 75

6-2. Cut the wire back far enough from the fuel module (Fig. 76) to make it easy to work with.

6-3. Crimp the female covered connector to the Original "In-Tank" fuel pump ECM lead (Fig.76). **Seal the connection with the "heat Shrink" supplied.**

Figure 76

6-4. Route and connect the AirDog® relay lead (Male Connector) to the ECM pump lead.

Figure 77

NOTE: The power supply leads can be connected to the battery or the alternator. Connecting the power supply leads to the alternator instead of the battery will create a corrosion free connection.

6-5A. Route the Red & Black power supply leads to the alternator. Connect the Black (-) lead to the alternator *Chassis Ground* connection. Connect the Red (+) lead to the alternator *Hot Lead* going to the battery.

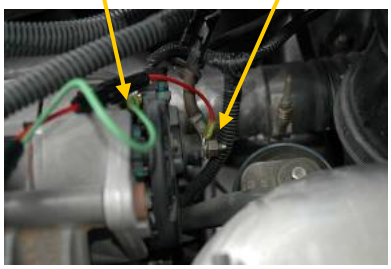


Figure 78

OR

6-5B. Should you choose to connect the power supply leads directly to the battery, connect the RED (+) lead to the POSITIVE (+) post of the driver's side battery. Connect the BLACK (-) lead to the NEGATIVE (-) post of the same battery.

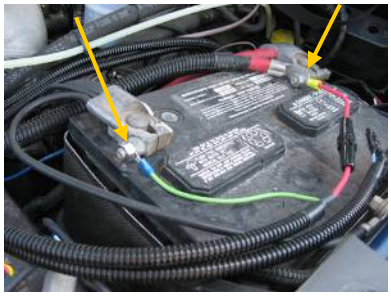


Figure 79

Connecting the Wiring Harness to the AirDog®

6-5. Route the wiring harness to the AirDog® and connect the 2 pin Deutsch connector to the corresponding connector on the AirDog®.

Figure 80

INSTALLING THE OPTIONAL LOW PRESSURE INDICATOR LIGHT

6-6. Remove the 1/8" npt plug located in the top of the base below the end of the motor. Screw the 45° adaptor fitting and pressure switch into this port and tighten. Connect the two pin connector on the wiring harness to the pressure switch.

Optional *Low Fuel Pressure Warning Light*!

Figure 81

Figure 82

Select a suitable location to install the Indicator Light!

6-7. Drill an 11/16" hole at that location. Drill a 5/8" hole in firewall to allow entry of the Indicator Light harness into the passenger compartment.

6-8. Route the Indicator Light harness through the firewall. Install the grommet supplied with the kit around the wiring harness where it passes through the firewall to prevent chaffing.

6-9. Install the Indicator Light and Dash Plate in the location you chose. Install the adhesive backed dash plate by removing the backing and matching the corresponding dash plate hole with the 11/16" hole.

6-10. Properly assemble the Indicator Light in the dash plate. Connect the two connectors on the wiring harness to the spade connectors on the indicator light.

BE SURE TO PROPERLY ROUTE AND SECURE THE WIRING HARNESS TO THE VEHICLE.

INITIAL START PROCEDURE

The ***AirDog***® is a self priming system, however, to prevent potential damage and reduce the life expectancy of the system, it is recommended to pre-fill only the water separator with diesel fuel before initial startup.

7-1. Pre-fill the water separator with diesel fuel.

CAUTION: Check all of the fuel line connections to ensure that they are properly connected and torque'd and **BE ESPECIALLY SURE** that the **FUEL FILTER IS TIGHT** to **PREVENT FUEL SPILLAGE!**

7-2. Turn the starter key to the on/run position.
Note: It may be necessary to momentarily engage the starter in order for the ECM to energize the ***AirDog***®**.**

7-3. While the ***AirDog***® is operating, bleed the air from the fuel line to the engine by loosening the fuel line connection at the engine fitting. As soon as the line is purged of air and pure fuel is observed, properly tighten the fuel fitting. NOTE: put a rag or shop towel over and around fitting to prevent splatter. Catch all spilled fuel and dispose of properly.

7-4. Start the engine!

RECHECK ALL FUEL FITTINGS FOR LEAKAGE AND PROPERLY TORQUE. BE SURE ALL FUEL LINES ARE PROPERLY ROUTED TO PROTECT FROM EXCESSIVE HEAT AND SECURED TO PROTECT FROM CHAFFING AND ABRASION. RECHECK ALL ELECTRICAL LINES, SECURE AS NECESSARY.

Checking Pump Noise!

Note: Each AirDog® has been manufactured in a Quality Controlled process and fully tested for operation and performance before shipment. This is a very quiet and smooth running system. With fuel or air alone, the AirDog® fuel pump will run very quietly. However, if any fuel fitting on the vacuum side, between the fuel tank and the AirDog® or the water separator, has been left loose during the installation process, the system may suck air at an excessive rate and will be very noisy. To check for this problem, unscrew the water separator 3 or 4 full turns and activate the AirDog® by turning the ignition switch to on. If the AirDog® runs quietly, then excessive air from a loose fitting or leaking water separator seal is most likely the reason for the excessive noise. Correct as necessary.

A. The seal groove in the 3" filter is a snug fit and on occasion the seal has been found to not be fully seated. Remove the water separator, remove the seal from the top of the nut plate. Clean and lubricate the seal groove. Carefully replace the seal in the groove. Be sure to fully seat the seal.

B. Check all fittings, especially the connection at the tank.

Filter Service Recommendations

Plugging of either the fuel filter or water separator will cause low fuel pressure and flow to the engine. Should you experience low pressure, first check the water separator for plugging and restriction. If the low fuel pressure issue continues, replace the fuel filter.

Figure 83

The Pre-filter

The AirDog® wire screen water separator/pre-filter is serviceable and does not need to be replaced as does the fuel filter. Replace the water separator only if it should become damaged or defective. Servicing of the water separator simply requires draining at regular intervals. It is suggested to check/drain the water separator every three months or as needed should you experience excessive 'water in fuel' conditions. When re-installing the water separator, be sure to clean the under side of the AirDog® base. Follow the instructions printed on the water separator for proper tightening procedures.

Caution: Be extremely careful to prevent any contaminates or debris from entering the water separator should it become necessary to remove it for cleaning! Large debris will jam the Gerotor and cause the fuse to blow. This is not a warranty item. Should this happen, it is easily put back into working order. See the instructions on "How to R & R the Gerotor" for proper procedures.

The Fuel Filter

Remove the fuel filter by turning it counter clockwise. Do Not pre-fill the fuel filter with fuel. The AirDog® will fill the filter and prime the system automatically. Follow the instructions on the filter for proper tightening procedures.

CAUTION: Dispose of waste fuel and used filters properly to protect the environment!

Changing the Regulator Spring

The AirDog® is shipped from the factory with the fuel pressure preset.

For the 2005-2009 Dodge Cummins the AirDog® fuel outlet pressure is preset at 15 PSI (±2). However, for some applications, you may desire to increase the pressure output from your AirDog®. To do this, you will need to install a higher tension spring.

Regulator Spring Replacement Procedure

The regulator spring and ball assembly is located inside the Return to Tank fuel port.

Step-1. Disconnect the 'Return to Tank' fuel line.

Figure 9-1

Figure 9-2

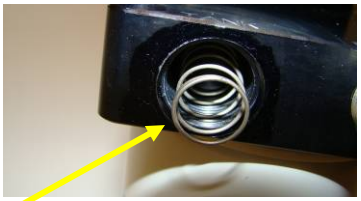


Figure 9-3

Step-2. Remove the 'Return to Tank' fuel line fitting exposing the regulator spring.

Step-3. Remove the ball and spring.

Figure 9-4

Figure 9-5

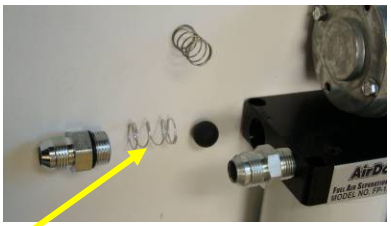


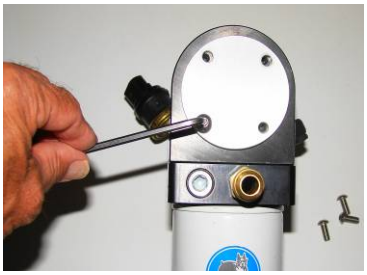
Figure 9-6

Step-4. Install the new regulator spring by reversing the steps shown in Figures 9-1 through 9-6. Be sure to place the regulator ball in the regulator seat before inserting the spring. Properly torque the return line fitting and swivel connection when finishing.

NOTE: Should any installation problems arise, please call, toll free 1-877-463-4373 or 573-635-0555, for assistance (Monday – Friday, 8:00 am – 5:00 pm CST).

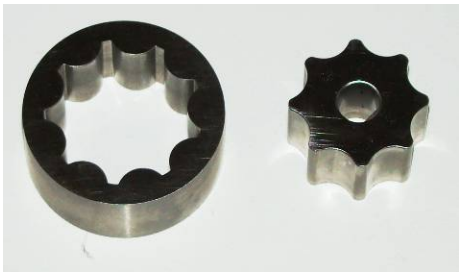
Cleaning Foreign Debris from the Gerotor Assembly

Step 1
Remove the four (4) buttons head cap crews that secure the Gerotor cap.



Step 2
Carefully remove the O-ring, you will need to re-use it.

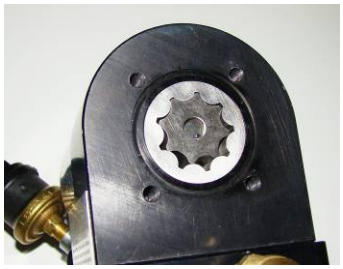
Step 3
Remove and clean the Gerotor. Be very careful not to damage the Gerotor.



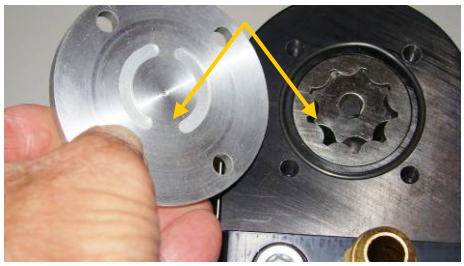
Step 4
Clean the inside of the Gerotor pocket.

Step 5
Replace the O-ring and center gear.

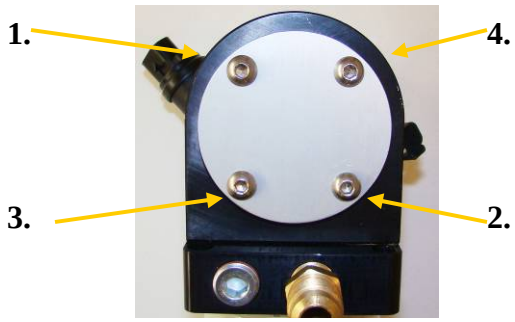
Step 6
Align the teeth and install the outer gear.



Step 7
Install the Gerotor cap. Be very careful to index the cap to position the wide space between the half moon cuts to the bottom.



Step 8
Replace the cap into position. Be very careful, do not pinch the O-ring. Torque the cap screws. in an opposing pattern.



NOTE: Should any installation problems arise, please call, toll free 1-877-463-4373 or 573-635-0555, for assistance (Monday – Friday, 8:00 am – 5:00 pm CST).

PUREFLOW® TECHNOLOGIES, INC.

LIFETIME LIMITED EXPRESS WARRANTY

Effective Date: March 12, 2008

FOR

AirDog® Fuel Systems FP-100/FP-150 and Raptor Fuel Pumps RP-100/RP-150

IMPORTANT NOTICE

TO ACTIVATE YOUR PUREFLOW® TECHNOLOGIES WARRANTY, YOU MUST COMPLETE AND MAIL YOUR WARRANTY CARD TO PUREFLOW® TECHNOLOGIES WITH A COPY OF YOUR ORIGNAL SALES RECEIPT WITHIN 30 DAYS OF PURCHASE. FAILURE TO COMPLETE AND SUBMIT YOUR WARRANTY CARD WILL RESULT IN A WARRANTY PERIOD OF THE COVERED PRODUCT TO ONE (1) YEAR FROM THE DATE OF PURCHASE.

PureFlow® Technologies, Inc. (hereafter collectively, "SELLER") warrants and guarantees only to the Original Purchaser (hereafter collectively, BUYER) that the AirDog® Fuel System FP-100, FP-150, Raptor Fuel Pump RP-100 or RP-150 (hereafter collectively, PRODUCT) shall be free from defects of materials and workmanship in the manufacturing process for as long as the BUYER owns the PRODUCT.

The Lifetime Limited Express Warranty is limited to the PRODUCT purchased by the original BUYER of the PRODUCT and limited solely to the parts contained within the PRODUCT and EXCLUDES ALL ELSE INCLUDING FILTERS AND WATER SEPARATORS. Any PRODUCT that is in question of Warranty must be returned shipped prepaid to PureFlow Technologies. All Warranty claims are subject to the approval of PureFlow® Technologies, Inc. If it is determined that a Warranty Claim exists, PureFlow® Technologies, Inc. will, at its sole discretion, replace the defective PRODUCT with a comparable PRODUCT, repair the defective PRODUCT, or refund the BUYER'S purchase price in exchange for the PRODUCT. Repairs or replacements are warranted for only the remainder of the original warranty period and only to the original BUYER.

Under no circumstances shall the SELLER be liable for any labor charged or travel time incurred in diagnosis for defects, removal, or reinstallation of the PRODUCT, or any contingent expense.

Under no circumstances will the SELLER be liable for any damage or expenses incurred by reason of the use or sale of the PRODUCT.

Other than expressly set forth herein, PUREFLOW® TECHNOLOGIES, INC. (hereafter collectively, "SELLER") shall in no way be responsible for the proper or improper use and service of the AirDog® Fuel System FP-100 or FP-150 or Raptor Fuel Pump RP-100 or RP-150 (hereafter collectively, PRODUCT). In no event shall SELLER be liable for any special, incidental, indirect or consequential damages of any kind or nature, whether or not the Original Purchaser (hereafter collectively, BUYER) of the PRODUCT was advised of the possibility of damage or harm, arising or resulting from the use or performance of the PRODUCT and BUYER hereby waives the right to any and all such claims.

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SELLER disclaims any warranty and expressly disclaims any liability for personal injury or damages related to BUYER'S use of the PRODUCT. BUYER acknowledges and agrees that the disclaimer of any liability for personal injury is a material term for this agreement and BUYER agrees to indemnify SELLER and hold SELLER harmless from any claim related to the PRODUCT and its use or performance. Under no circumstances will SELLER be liable for any damages, liabilities, costs or expenses incurred as a result of or by reason of the use, performance or sale of the PRODUCT, including, without limitation, any damages, liabilities, costs or expenses incurred by reason of BUYER'S negligence related to those uses of the PRODUCT.

The proper installation of the PRODUCT is the sole responsibility of the BUYER. The SELLER assumes no liability regarding the improper installation or misapplication of the PRODUCT.

SELLER hereby provides the following limited warranty as to description, quality, merchantability, fitness for the PRODUCT'S purpose, productiveness, or any other matter of SELLER'S PRODUCT sold herewith. The SELLER shall be in no way responsible for the open use and service of the PRODUCT and the BUYER hereby waives all rights other than those expressly written herein. This Warranty shall not be extended or varied except by a written instrument signed by SELLER and BUYER.

IN THE EVENT THAT THE BUYER DOES NOT AGREE WITH THIS AGREEMENT, THE BUYER MAY PROMPTLY RETURN THE PRODUCT, IN A NEW AND UNUSED CONDITION, WITH A DATED PROOF OF PURCHASE, TO THE PLACE OF PURCHASE WITHIN THIRTY (30) DAYS FROM DATE OF PURCHASE FOR A FULL REFUND. THE BUYER AGREES THAT THE INSTALLATION OF THIS PRODUCT CONFIRMS THE BUYER HAS READ AND UNDERSTANDS THIS AGREEMENT AND ACCEPTS THE TERMS AND CONDITIONS OF THIS AGREEMENT.

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